Utility Services

Solid Waste Goals

- ✓ To provide efficient and economical refuse collection, recycling and disposal services.
- ✓ To provide facilities for the sanitary, efficient and economical reception and transportation of solid waste generated in Fairfax County.
- ✓ To reduce the volume of solid waste stream through the implementation of recycling and waste reduction programs.
- ✓ To provide for the operation of sanitary waste disposal facilities, utilizing the most economically viable and environmentally acceptable methods available.
- ✓ To provide regulatory oversight of the County's ordinances regarding solid waste.

Sanitary Sewer Goals

- ✓ To provide treatment facilities that meet applicable effluent discharge standards in the most cost-effective manner possible.
- ✓ To provide a system of conveyance and treatment facilities that is responsive to the development goals of the adopted Comprehensive Plan.
- ✓ To carry out the necessary renovation and improvements that will permit the entire system to function at a high level of efficiency.
- ✓ To extend sewer service within approved areas to those sections of the County where failed or failing septic systems pose a potential threat to the health of County citizens.

Water Supply Goals

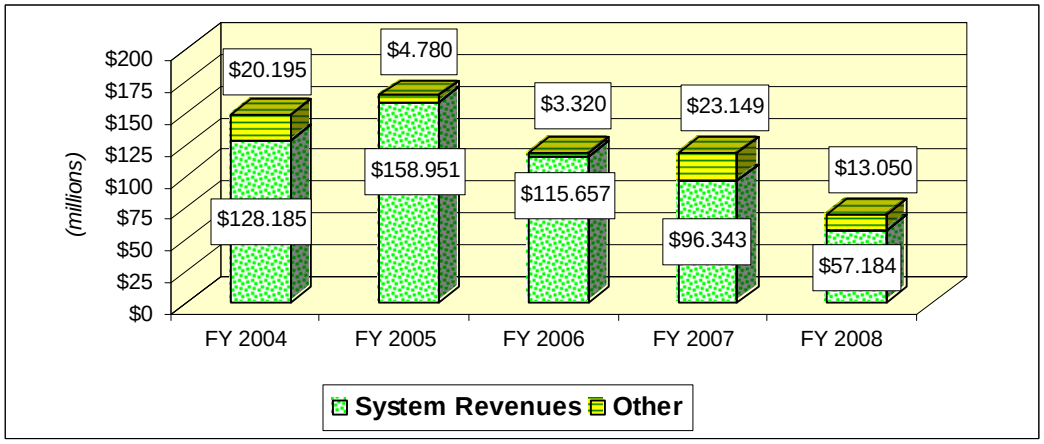
- ✓ To provide the facilities to treat, transmit, and distribute a safe and adequate water supply.

Five-Year Program Summary

(in millions)

Program Area	Authorized/ Expended Thru FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total FY 2004 - FY 2008	Total FY 2009 - FY 2013	Total Program Costs
Solid Waste	$89,642	$14,929	$450	$0	$2,249	$10,500	$28,128	$8,500	$126,270
Sanitary Sewers	686,774	47,544	75,686	42,131	37,740	33,349	236,450	116,600	1,039,824
Water Supply	216,638	85,907	87,595	76,846	79,503	26,385	356,236	120,234	693,108
Total	$993,054	$148,380	$163,731	$118,977	$119,492	$70,234	$620,814	$245,334	$1,859,202

Source of Funding



Solid Waste

PROGRAM DESCRIPTION

The Division of Disposal and Resource Recovery and the Division of Collection and Recycling provide solid waste services for the County. Refuse collection and recycling services are available to all citizens of Fairfax County by either private contractors or County collection crews. Private contractors presently account for 87 percent of refuse collected. The remaining 13 percent are collected by County collection crews. The County also provides refuse collection services to all County agencies (except schools). Additionally, the County provides leaf collection services to participating neighborhoods. In order to provide the County with a long-term solution to refuse disposal, an Energy/Resource Recovery Facility was constructed at the site of the I-95 Landfill. This facility, which is privately owned and operated, began commercial operation on June 1, 1990, and has a design capacity of 3,000 tons per day (TPD).

LINK TO THE COMPREHENSIVE PLAN

Fairfax County's Comprehensive Plan has established a number of objectives and policies in order to:

- ✓ Provide conveniently located solid waste management facilities and operations, while ensuring these facilities are compatible with adjacent land uses.
- ✓ Provide an efficient, cost effective, and environmentally sound, comprehensive solid waste management system that meets the current and future needs of the County.
- ✓ Add facility enhancements at the I-66 Transfer Station and I-95 Landfill to allow environmentally sound and efficient collection, recycling, transfer and disposal of refuse and recyclable materials.
- ✓ Maintain existing Recycling Drop-off Centers to serve residential and business customers.

Source: 2000 Edition of the Fairfax County Comprehensive Plan, as amended

CURRENT PROGRAM INITIATIVES

Currently the County operates two permitted solid waste management facilities, the I-95 Sanitary Landfill, and the I-66 Transfer Station, and developed the Energy/Resource Recovery Facility. All three facilities are operated under permits issued by the Virginia Department of Environmental Quality. The I-95 Landfill and the Energy Resource Recovery Facility are located on land recently transferred from Federal Government ownership to County ownership.

The I-95 Landfill is the only sanitary landfill in the County and provides land disposal for ash originating in the County, the City of Alexandria, Arlington County, and the cities and towns of Vienna, Fairfax, Falls Church, Herndon, and Clifton.

The I-66 Transfer Station has been operational since 1983. Refuse deposited by collection vehicles is loaded into tractor-trailer trucks and transported 29 miles to the I-95 Energy/Resource Recovery Facility or other appropriate locations for disposal. Based upon growth, which occurred in the County, and changes in handling recycled products, the County completed an expansion of the station in 1997. The expansion added approximately 36,000 square feet of disposal area within 11 enclosed bays.

The total capital cost of the Energy/Resource Recovery Facility was $195,000,000, which was financed through the sale of bonds and the owner's capital. The County authorized construction of a non-ferrous metal recovery system at the Energy/Resource Recovery Facility. These metals are “non-magnetic” and were not recovered from the original magnetic recovery system. Typical metals that are now recovered include copper, aluminum, and other non-magnetic metals. Covanta Fairfax, Inc. (CFI) constructed the system at no cost to the County, as the sale of the additional non-ferrous scrap would pay for the construction and operational costs of the additional equipment. CFI estimated that the capital costs for this system were approximately $3 million. The non-ferrous metals recovery system became operational in October 1997. CFI has constructed additional air pollution control equipment at the Energy/Resource Recovery Facility to comply with provisions of the Clean Air Act. Mercury and nitrogen oxide removal systems are now operational. The capital cost for the air pollution systems was $7.75 million, and was funded through bonds originally purchased for the facility and owner equity.

The County anticipates completing a new Solid Waste Management Plan, pursuant to new state requirements by mid 2004. The plan will review current procedures as well as analyze future waste disposal issues for Fairfax County.

CURRENT PROJECT DESCRIPTIONS

1. **Transfer Station Expansion**. $14,688,588 for the expansion of building and miscellaneous repairs to the old portion of the original transfer station building and other on-site needs.

2. **I-95 Landfill Liner Area 3**. $34,877,000 for the ash containment flexible membrane liner. Phase I and Phase IIA funded at $18,377,000 have been completed. The remaining $16,500,000 is included for Phase IIB and Phase IIIA. The Phase III estimate is conservative, and will require further evaluation based upon construction techniques available for synthetic membrane systems. Phase IV of the project is not covered during this planning period.

3. **I-95 Leachate Facility**. $2,921,000 for a leachate pretreatment/treatment facility to process fluids collected from liner systems at the Landfill. This project is in the interim design stage, pending analysis of leachate characteristics.

4. **I-95 Landfill Road Construction**. $1,642,000 for the various haul roads essential at the I-95 Landfill for truck traffic to access the Area 3 Lined Landfill, and final portions of the existing Municipal Solid Waste Landfill.

5. **I-95 Landfill Perimeter Fence**. $1,274,645 for the construction of fencing enclosing the perimeter area of the I-95 Landfill and for various shop maintenance facilities. These projects are near completion.

6. **I-95 Paved Ditch Extension**. $1,624,000 for drainage improvements for the intermediate slopes of the I-95 Landfill to control erosion. This work involves placing armored ditches on side slope areas and stormwater pipes at bench crossings.

7. **I-95 Landfill Closure.** $66,266,579 to meet all state and federal regulations regarding the closure of the I-95 Landfill. This project will involve six individual phases. The CIP total includes four phases, which will close the existing municipal solid waste portion of the Landfill with a flexible membrane liner material to “seal” the Landfill from external sources. Two additional phases of closure will occur for the ash landfill unit, but are beyond the planning period. Phases I and II of Closure have been completed. Closure Plans have been submitted to the Virginia Department of Environmental Quality (VDEQ) for approval of Phase III and IV closure. The closure of Phase III and IV will occur after VDEQ’s approval.

8. **I-95 Landfill Methane Gas Recovery.** $2,603,000 to capture methane gas generated from the I-95 Landfill by means of collection wells and pipes. The project is also a multi-phase project. As an additional benefit, a portion of the recovered methane is being utilized to produce electricity at the Landfill, for sale to Dominion Power. A pipeline that runs between the I-95 Landfill and the Noman Cole Jr. Treatment Plant to convey excess landfill gas to the treatment plant for use as a fuel was completed during the summer of 1997.

9. **Newington Vehicle Facility Expansion.** $373,000 for the design and construction of a conference/training room by expanding an existing break room at the Newington Solid Waste Vehicle Operations Facility. This facility is the operations headquarters of the Division of Solid Waste Collection and Recycling, and requires a larger conference/training room to accommodate employees. Design is complete and construction will be complete in early FY 2004.

PROJECT COST SUMMARIES
SOLID WASTE
($000's)

Project Title/ Project Number	Source of Funds	Authorized or Expended Thru FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total FY2004-FY2008	Total FY2009-FY2013	Total Project Estimate
1. Transfer Station Expansion / 174002 through 174006	X	***14,689***						0		14,689
2. I-95 Landfill Liner Area 3 / 186435	X	***18,377***	***5,751***			***2,249***		8,000	8,500	34,877
3. I-95 Leachate Facility / 186440	X	***2,921***						0		2,921
4. I-95 Landfill Road Construction / 186450, 186460	X	***1,642***						0		1,642
5. I-95 Landfill Perimeter Fence / 186455, 186420	X	***1,275***						0		1,275
6. I-95 Paved Ditch Extension / 186470	X	***1,174***		***450***				450		1,624
7. I-95 Landfill Closure / 186650	X	***46,588***	***9,178***				***10,500***	19,678		66,266
8. Methane Gas Recovery / 186600	X	***2,603***						0		2,603
9. Newington Vehicle Expansion / 109001	X	***373***						0		373
TOTAL		$89,642	$14,929	$450	$0	$2,249	$10,500	$28,128	$8,500	$126,270

Key: Stage of Development
- Feasibility Study or Design
- Land Acquisition
- Construction

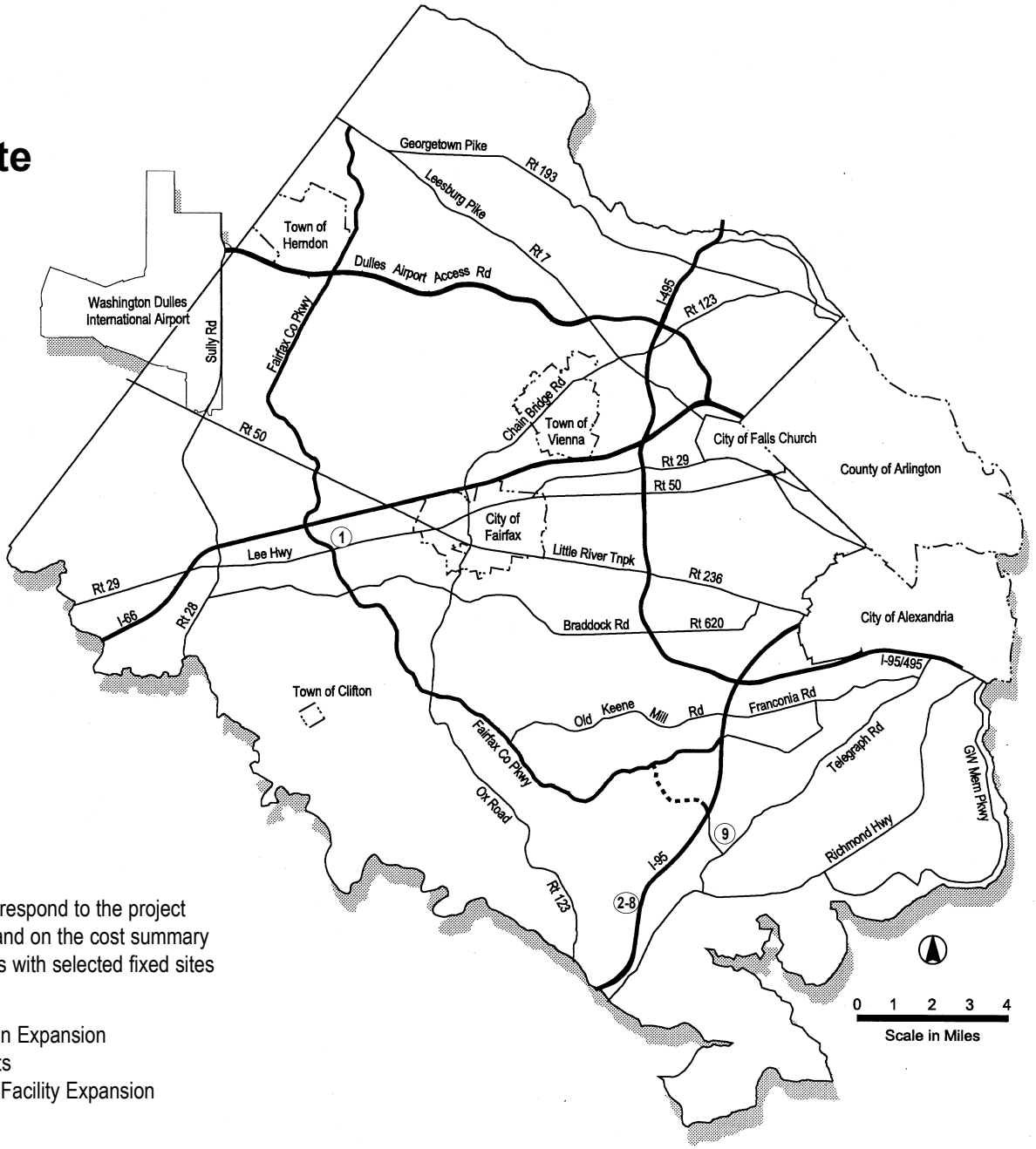
Notes:
Numbers in bold italics represent funded amounts.

Key: Source of Funds

B	Bonds
G	General Fund
S	State
F	Federal
X	Other
U	Undetermined

Solid Waste

Location of CIP Projects



Note: Map numbers correspond to the project descriptions in the text and on the cost summary tables. Only CIP projects with selected fixed sites are shown on the map.

1. I-66 Transfer Station Expansion
2-8. I-95 Landfill Projects
9. Newington Vehicle Facility Expansion

Sanitary Sewers

PROGRAM DESCRIPTION

Fairfax County provides sewer service to its citizens through a system of approximately 3,135 miles of sewer lines, 61 pumping stations, 51 metering stations, and one treatment plant owned and operated by the County. Additional treatment capacity is provided by contractual agreements with the District of Columbia, the Alexandria Sanitation Authority (ASA), Arlington County and the Upper Occoquan Sewerage Authority (UOSA).

LINK TO THE COMPREHENSIVE PLAN

Fairfax County's Comprehensive Plan has established a number of objectives and policies in order to:

- ✓ Emphasize the need to maintain a system of conveyance and treatment facilities that is responsive and compatible with the land use and environmental goals of the County.
- ✓ Provide for public sewer in accord with the Board of Supervisor's Approved Sewer Service Area and the expansion of lines and plants consistent with other facility availability and land use development goals.

Source: 2000 Edition of the Fairfax County Comprehensive Plan, as amended

CURRENT PROGRAM INITIATIVES

During the CIP planning period, the County will provide both increased treatment capacity and improved effluent quality. Additional plant capacity will be required to serve projected residential and nonresidential growth. Stringent water quality standards require the greater treatment efficiency provided by advanced wastewater treatment.

Financing of the capital program for the sanitary sewerage system is derived from two sources: the sale of revenue bonds and current system revenues. While federal and state grants were extensively utilized to fund the construction programs of the 1970's and 1980's, the financial burden of future programs will fall heavily on the County due to scarcity of federal grant funds. The County has recently signed a grant agreement with the state of Virginia which provides funding for 50 percent of the plant upgrade costs to remove nitrogen. Sewer revenue bonds that are issued are payable solely from the revenues of the Wastewater Management Program and are not general obligations of Fairfax County. These bonds are sometimes refinanced to take advantage of the lower interest rates.

Approximately 90 percent of the system's revenues are derived from charges to new and existing customers through availability fees and sewer service charges. New customers to the program are charged a one time availability fee per new connection for access to the program. Existing customer charges are based upon the annualized equivalent of actual water consumption during the winter quarter. Availability fees and sewer service charges are established by the Fairfax County Board of Supervisors. Since 1979 the Board has used the five-year financial projection of available cash balances to determine the appropriate level of availability fees and sewer service charges. The available cash balance reflects the projected sources and uses of funds by new and existing customers. The system allocates operating revenues and expenses, debt service and capital outlay between existing users and new users of the

program. The remaining 10 percent of system revenues are derived primarily from sale of service to wholesale users such as Fairfax City, Herndon, Falls Church, Vienna or Ft. Belvoir.

Sewer revenue bonds were issued to provide funds for expanding treatment facilities at the Noman M. Cole, Jr. Pollution Control Plant and Fairfax County's share of expanding facilities at the District of Columbia's Blue Plains Wastewater Treatment Plant. The Noman M. Cole, Jr. Pollution Control Plant was expanded from 36 million gallons per day (MGD) to 54 MGD. The Blue Plains Wastewater Treatment Facility was expanded from 309 MGD to 370 MGD. Fairfax County's allotment of Blue Plains Capacity increased from 16.026 MGD to 31 MGD.

Looking to the future, there are three major issues facing the Wastewater Management Program: A balance must be struck between (1) the necessity of maintaining high levels of water quality (including meeting the one part per million ammonia-nitrogen discharge standard); (2) keeping pace with County growth and (3) achieving these goals in terms of both financial and other resources. To a similar end, consideration must be given to inspecting, repairing and maintaining the system at acceptable service levels. In most instances, annual expenditures for system upkeep will enable the County to avoid costly, major rehabilitation in the future.

Noman M. Cole, Jr. Pollution Control Plant

The Noman M. Cole, Jr., Pollution Control Plant (NCPCP) serves the Accotink, Pohick, Long Branch, Little Hunting Creek and Dogue drainage basins. In addition to flows originating within the County, the plant also treats sewage from the City of Fairfax, Fort Belvoir, and part of the Town of Vienna. The Noman M. Cole, Jr. Plant was put on line in 1970 and had an initial design capacity of 18 MGD which was subsequently increased to a rating of 36 MGD of advanced treatment in 1978 and again increased to a rating of 54 MGD in 1995. In order to meet the anticipated needs for sanitary sewage service in sheds that contribute to the NCPCP as well as meet new water quality standards for nitrogen control, a program for expansion of the plant to 67 MGD was initiated in 1992. Construction began in 1997 and is expected to be completed in the year 2004. The Noman M. Cole, Jr. Pollution Control Plant will be capable of handling anticipated flows from its contributory sheds through 2015.

Alexandria Sanitation Authority

The Cameron Run and Belle Haven watersheds and the City of Falls Church are served by the Alexandria treatment plant. The Alexandria plant is owned and operated by the Alexandria Sanitation Authority (ASA). Sixty percent of its capacity is contractually allocated to Fairfax County. The ASA plant has been expanded and upgraded to provide 54 MGD of advanced secondary treatment capacity. Fairfax County is allotted 32.4 MGD of capacity. By 2005, flows from Cameron Run, Belle Haven and Falls Church should approach 23 MGD which will leave Fairfax County with unused capacity of several years beyond that time. By reactivating the Braddock Road and Keene Mill Road pumping stations, the County has the capability to divert flow from the Accotink watershed to ASA. These diversions will increase the County's wastewater management alternatives in the entire eastern portion of the County by off loading the Noman M. Cole, Jr., Pollution Control Plant and Blue Plains Treatment Plant to the ASA plant. The ASA plant is currently under going a major rehabilitation project to meet new water quality standards for nitrogen removal, which should be completed by the end of 2005.

Blue Plains

With a current capacity of 370 MGD, the District of Columbia Water and Sewer Authority (DCWASA) treatment plant at Blue Plains is the largest plant in the area. In addition to the District of Columbia, it treats flows from Maryland, Virginia, and several federal installations. Wastewater flows originating in the Sugarland Run, Horsepen Creek, Difficult Run, Scotts Run, Dead Run, Turkey Run, and Pimmit Run watersheds are treated at Blue Plains. Fairfax County is presently allocated 31 MGD at the plant. Blue Plains will be undergoing a major renovation over the next several years in the chemical additions and sludge disposal systems. The County's potential share of this renovation will be $47,000,000 over the next eight years.

Arlington County Pollution Control Plant

The Arlington County pollution control plant serves that portion of Fairfax County within the Four Mile Run watershed. The plant has been expanded and upgraded to 30 MGD of advanced secondary capacity. Over the next five years, the plant will be upgraded again to revamp its primary and solids handling facilities and to expand it to 40 MGD. Arlington County now handles approximately 2.4 MGD for Fairfax County at the Arlington plant. Projections for 2004 indicate that this level of service will not increase significantly. The total capacity reserved for Fairfax County is 3.0 MGD.

Upper Occoquan Sewage Treatment Authority

The southwestern part of Fairfax County is served by a regional plant owned and operated by the Upper Occoquan Sewage Authority. This plant became operational in 1978 and replaced five small treatment plants in Fairfax County (Greenbriar, Big Rocky Run, Flatlick Run, Upper Cub Run, and Middle Cub Run) and six in Prince William County. This plant was originally certified to operate at 15 MGD. Fairfax County's initial share of the plant was 30.83 percent but during 1978 the County purchased additional capacity from Manassas Park which brought the County's share of plant capacity up to 36.33 percent. The County's capacity in the plant was 5.45 MGD before it increased to nearly 10 MGD with the expansion of the UOSA plant to 27 MGD in FY 1989. Several expansion efforts have occurred bringing the capacity to 54 MGD and raising Fairfax County's capacity to 27.6 MGD to meet capacity demands beyond the year 2015.

Fairfax County has completed the program of plant expansion and upgrading that was begun in the early 1970's. This program was directed at pollution problems in the Potomac River and the Occoquan Reservoir and was comprised of four major elements:

- Creation of a single treatment complex at the Noman M. Cole, Jr. Plant to treat flows from the Accotink, Pohick, Dogue and Little Hunting Creek Watersheds and Fort Belvoir;
- Installation of pumping facilities at the old Westgate Treatment Plant to divert flows from its service area to the Alexandria treatment plant;
- Expansion and upgrading of the DCWASA treatment plant at Blue Plains to 370 MGD; and
- Construction of the UOSA plant and eliminating the discharge from the five small County facilities.

CURRENT PROJECT DESCRIPTIONS

1. **Noman M. Cole, Jr. Pollution Control Plant Construction.** $239,893,000 for the feasibility study, design and construction to expand the plant to 67 MGD. This capacity will meet the future demands until the year 2017 for the Accotink, Pohick, and Long Branch drainage basins and the City of Fairfax, the Town of Vienna and Fort Belvoir. The project also includes funds to improve treatment by removing nitrogen from the effluent.

2. **Alexandria Wastewater Treatment Plant Improvements.** $184,695,000 for improvements at the Alexandria Wastewater Treatment Plant. Included is renovation to the carbon absorption system, scum collection system, the dechlorination system and the nitrogen removal system to meet the one part per million ammonia-nitrogen standard. The County will borrow a total of $90,000,000 from the State Revolving Loan fund to complete this project.

3. **Blue Plains Wastewater Treatment Plant, DCWASA.** $134,398,000 for the County's share of upgrading to 370 MGD at the Blue Plains Treatment Plant. Blue Plains will be undergoing a major renovation over the next several years in the chemical additions and sludge disposal systems. The schedule of this renovation will cover the next ten years.

4. **Sewer Line Rehabilitation Program.** This is a continuing project for the replacement, repair, and rehabilitation of sewer lines.

5. **Sewer Metering Projects.** This is a continuing project for the rehabilitation and installation of facilities to measure sewage flows. Sewer line meters are utilized to monitor flows through lines located in the 20 major and several minor sewer sheds in the County. Flows must be monitored to: (1) determine when lines are nearing maximum capacity, (2) detect ground water inflow/infiltration, (3) allow proper billing under interjurisdictional agreements for sewage treatment, and (4) comply with Virginia Water Control Board regulations requiring metering at all trunk sewer junctions.

6. **Sewer System Improvement.** This is a continuing project for the systematic improvements to the Wastewater Management Program.

7. **Pumping Station Improvements.** This is a continuing project for replacement and necessary improvements to the program's 60 pumping stations. These improvements do not increase capacity or scope, are related to normal wear and tear, and provide odor control equipment to mitigate odors.

8. **Sewer Extension Program.** This is a continuing project to complete sewer extension and improvement projects in those areas of the County that are experiencing chronic septic system failures.

9. **Upper Occoquan Sewage Authority (UOSA) Expansion to 54 MGD.** $359,674,000 to expand the UOSA Regional Plant to 54 MGD thereby increasing the County's share at this facility to 27.6 MGD. An additional $158,124,000 will be required beyond the 10-year CIP horizon.

10. **Arlington Wastewater Treatment Plant Upgrade to 40 MGD.** $13,458,000 for the Fairfax County share of the plant upgrade costs. This project is the result of a new Interjurisdictional Sewer Service Agreement which requires funding from participating jurisdictions, on the basis of their share of sewerage capacity and to meet the one part per million ammonia-nitrogen discharge standard.

11. **Sewer Relocation.** $2,563,000 for the design and construction to relocate and repair sewers and manholes due to construction by VDOT and the County.

12. **Rocky Run Pump Station Rehabilitation.** $4,336,000 to enlarge the current pumping station to handle the increase wastewater flow in the Rocky Run watershed. The current pumping station has reached full capacity.

PROJECT COST SUMMARIES
SANITARY SEWERS
($000's)

Project Title/ Project Number	Source of Funds	Authorized or Expended Thru FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total FY2004-FY2008	Total FY2009-FY2013	Total Project Estimate
1. Noman M. Cole Jr. Pollution Control Plant Construction / N00322, N00321	SR	***215,665***		***24,228***				24,228		239,893
2. Alexandria Wastewater Treatment Plant Improvements / I00904	SR	***166,780***	***9,930***	***7,985***				17,915		184,695
3. Blue Plains Wastewater Treatment Plant, DCWASA / G00901, G00902	SR	***87,398***	***8,400***	***8,200***	***11,400***	***8,500***	***4,100***	40,600	6,400	134,398
4. Sewer Line Rehabilitation Program / X00905, L001117, I00905	SR	***C***	***11,500***	***6,000***	***6,000***	***6,000***	***6,000***	35,500	15,000	50,500
5. Sewer Metering Projects / X00445	SR	***C***	***50***	***600***	***50***	***50***	***50***	800	150	950
6. Sewer System Improvements / X00906, X00910	SR	***C***	***154***	***7,163***	***4,171***	***3,180***	***3,189***	17,857	9,000	26,857
7. Pumping Station Improvements / I00351	SR	***C***	***500***	***2,000***	***2,000***	***2,000***	***2,000***	8,500	3,000	11,500
8. Sewer Extension Program	SR	***C***		***2,000***	***2,000***	***2,000***	***2,000***	8,000	3,000	11,000
9. Upper Occoquan Sewage Authority (UOSA) Expansion to 54 MGD	SR	***199,574***	***16,010***	***16,010***	***16,010***	***16,010***	***16,010***	80,050	80,050	359,674
10. Arlington Wastewater Treatment Plant Upgrade to 40 MGD / G00903	SR	***11,458***	***1,000***	***500***	***500***			2,000		13,458
11. Sewer Relocation / X00930	SR	***1,563***		***1,000***				1,000		2,563
12. Rocky Run Pump Station Rehabilitation / T00124	SR	***4,336***						0		4,336
TOTAL		$686,774	$47,544	$75,686	$42,131	$37,740	$33,349	$236,450	$116,600	$1,039,824

Key: Stage of Development
- Feasibility Study or Design
- Land Acquisition
- Construction

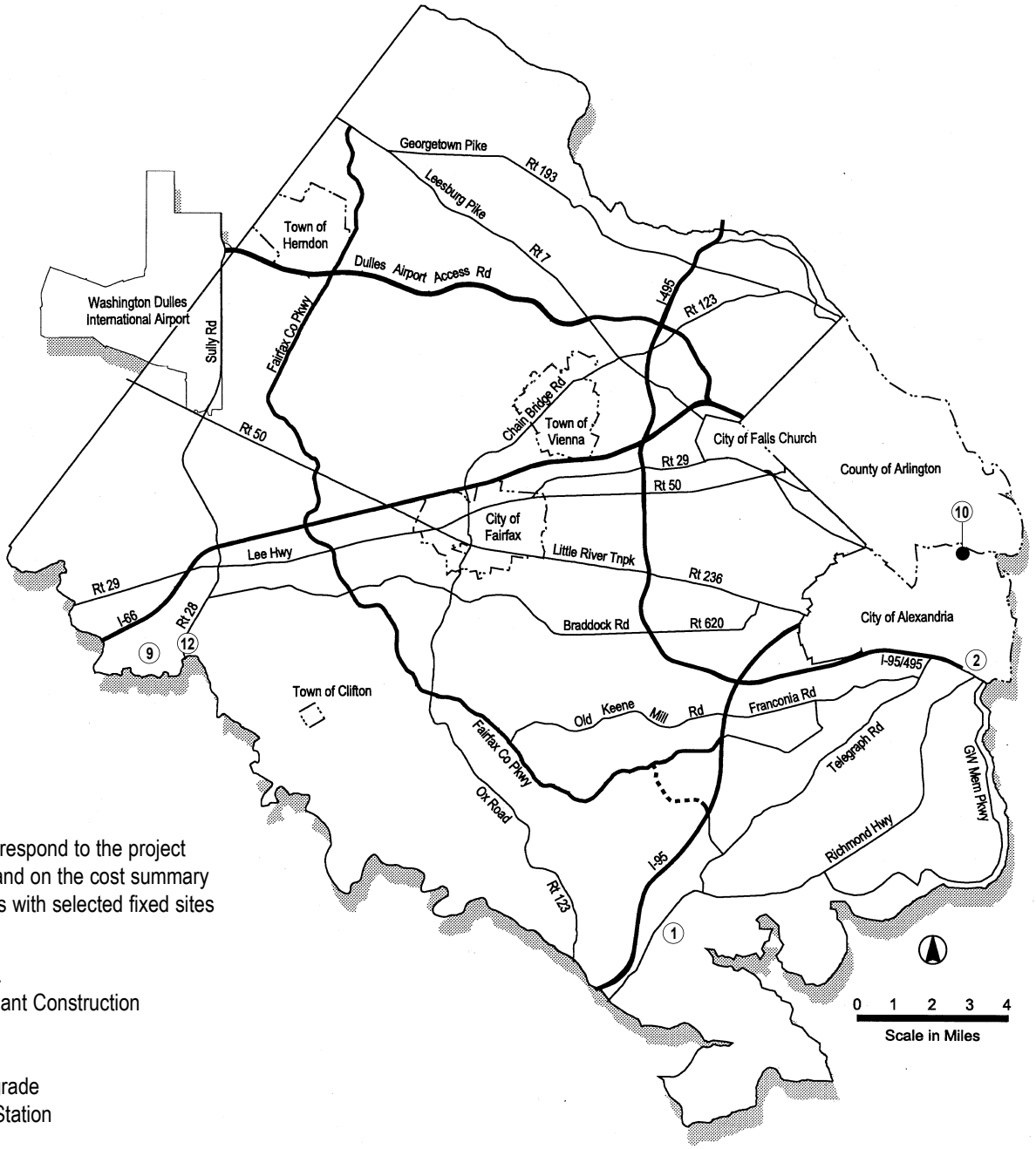
Notes:
Numbers in bold italics represent funded amounts.
A "C" in the Authorized or Expended Column denotes a Continuing project.

Key: Source of Funds

B	Bonds
G	General Fund
S	State
F	Federal
X	Other
U	Undetermined
SR	Sewer Revenues

Sanitary Sewers

Location of CIP Projects



Note: Map numbers correspond to the project descriptions in the text and on the cost summary tables. Only CIP projects with selected fixed sites are shown on the map.

1. Noman M. Cole, Jr. Pollution Control Plant Construction
2. Alexandria WTP
9. UOSA Expansion
10. Arlington WTP Upgrade
12. Rocky Run Pump Station

Water Supply

PROGRAM DESCRIPTION

Residents of Fairfax County receive public water service from one of three water agencies: Fairfax County Water Authority, City of Fairfax Department of Transit and Utilities, and the Falls Church Department of Public Utilities. The Towns of Vienna and Herndon, while operating their own water distribution systems, purchase water from the City of Falls Church and the Fairfax County Water Authority, respectively. In terms of meeting water supply needs, the towns are dependent on these two water agencies. Using recent estimated averages, the Fairfax County Water Authority serves 79 percent of Fairfax County residents, Falls Church serves 13 percent, the City of Fairfax one percent, and the remaining 7 percent of the residents receive water from their own individual wells.

LINK TO THE COMPREHENSIVE PLAN

Fairfax County's Comprehensive Plan has established a number of objectives and policies in order to:

- ✓ Provide the facilities to treat, transmit, and distribute a safe and adequate potable water supply.
- ✓ Identify the need for additional water transmission facilities, including the Corbalis-Fox Mill Water Main, Fox Mill-Vale Road Water Main, Waples Mill – Vale Road Water and the Stringfellow Road Water Main.

Source: 2000 Edition of the Fairfax County Comprehensive Plan, as amended

CURRENT PROGRAM INITIATIVES

While Fairfax County has neither direct administrative nor budgetary control over water suppliers, the importance of water facilities to County planning is recognized. The Board of Supervisors has entered into an agreement with the Fairfax County Water Authority, which requires Board approval of all capital projects undertaken by the Water Authority. The Fairfax County Water Authority projects included in this CIP represent a program guided by the objectives of the Comprehensive Plan and endorsed by the Board of Supervisors. In the interest of providing a complete picture to the citizens of Fairfax County, the independent Programs for Falls Church and Fairfax City are also presented. Inclusion in this document represents neither concurrence nor approval of Fairfax County of the individual projects proposed by Falls Church or Fairfax City. They are presented for information purposes only. Additional information can be found in the Authority's 2003 ten year Capital Improvement Program, which is available directly from the Fairfax County Water Authority.

Fairfax County Water Authority

The principal sources of water for the Water Authority are the Occoquan River and the Potomac River. Supplementary sources of water include one public well system and interconnections with the Cities of Fairfax and Falls Church, Town of Vienna, Loudoun County, and Arlington County. The Occoquan Reservoir is impounded by two gravity-type concrete dams across the Occoquan River, a few miles upstream of its confluence with the Potomac River. The low-level dam was constructed in 1950 and the high-level dam was constructed about 3,000 feet further upstream in 1957. The drainage area of the

Occoquan River above the dam is approximately 595 square miles. The dam impounds about 8.3 billion gallons of water when filled to the crest of the dam at Elevation 122 feet, mean sea level. The present Occoquan River supply has a safe yield of about 72 MGD. The Potomac River Source of supply has its raw water intake located near Sugarland Run at Lowes Island in Loudoun County. The Potomac River at the Authority intake is slightly impounded by the Seneca rock weir.

Treatment Facilities

Treatment of water from the Occoquan Reservoir is provided at three interconnected plants which have a combined current capacity of 112 MGD. The Occoquan Treatment Plant, located in Prince William County, was placed in service in 1964. The Lorton Treatment Plants, located in Fairfax County, were placed in service in 1951 and in 1973. These facilities apply various chemicals for coagulation, the control of taste and odors, fluoridation, and disinfection. Construction of the Griffith Treatment Plant began during 2000. The Griffith Treatment Plant will replace the existing Lorton and Occoquan Treatment Plants.

Construction of the intake structure, raw water pumping station and initial phase of the Corbalis Treatment Plant commenced in 1978 and was placed into operation in 1982. A major plant expansion was begun in 1992 and completed in 1995. The Corbalis Treatment Plant is authorized by the Virginia Department of Health to operate at a filtration rate of 150 MGD. Facilities are available for applying various chemicals for coagulation, control of taste and odors, fluoridation, and disinfection. Design of the next increment of capacity began in 2002. When completed, this will increase the capacity of the Corbalis plant to 225 MGD.

Twenty-nine booster pumping stations are located within the distribution system to provide adequate pressure throughout the Authority's service area. A total of 42 million gallons (MG) of distribution system storage is provided at 31 locations throughout Fairfax County. There are approximately 3,070 miles of water main up to 54 inches in diameter in the system. The distribution system is interconnected at 76 locations with 12 other water systems in northern Virginia.

City of Fairfax Department of Transit and Utilities

Fairfax City owns and maintains two water reservoirs in Loudoun County. They are two miles apart and are located about seven miles northwest of Sterling Park. Goose Creek Reservoir holds about 200 MG. Beaverdam Creek Reservoir impounds about 1.3 billion gallons. Beaverdam Reservoir ensures the City a four-month supply against drought and low flow in Goose Creek. The City's treatment plant is located at Goose Creek; its capacity is 12 MGD. The City has a pumping station located at Goose Creek which delivers water to the transmission and distribution system. Three storage tanks (nine MG total) are maintained in the City to equalize water pressure. The City's water transmission line runs 22 miles from Goose Creek to the City of Fairfax along the abandoned W&OD railroad right-of-way and parallels Hunter Mill Road.

Falls Church Department of Public Utilities

Falls Church buys treated water from the U.S. Corps of Engineers via a 36-inch connection to the Dalecarlia Filter Plant located on MacArthur Boulevard in the District of Columbia. The Corps obtains its raw water from the Potomac River at Great Falls. The Falls Church Water System has a current system capacity of 45 MGD. The Falls Church Water System consists of the main pumping station at Chain Bridge and seven booster pumping stations. The system includes 9 storage facilities with a total capacity of approximately 12 MGD. The Tysons Tank has been demolished and a new tank with a capacity of 2.2 MG will be constructed in 2003. The overall system consists of approximately 465 miles of pipe ranging from 4 inches to 42 inches.

Development of the Fairfax County Water Authority's supply, treatment, transmission, and distribution facilities is conducted in accordance with a ten year Capital Improvement Program. Highlights of the current program include:

- **Construction of the new F. P. Griffith Water Treatment Plant:** When completed in 2004, this facility will utilize state-of-the-art treatment techniques capable of meeting the newly adopted water quality requirements of the Safe Drinking Water Act.

- **Capacity Development at the Corbalis Water Treatment Plant:** Design is underway to provide additional production capacity needed to satisfy projected demand for water within the Authority's service area.
- **Creation of a Consolidated Laboratory:** A new laboratory for the analysis of all source and finished water is under construction at Corbalis. Laboratory improvements are necessary to achieve water quality objectives and demonstrate compliance with drinking water regulations.
- **Construction of various Transmission Mains**: Corbalis to Fox Mill Water Main (Phase II), Stringfellow Road Water Main, Fox Mill to Vale Road Water Main, and Waples Mill to Vale Road Water Main.
- **Implementation of a Supervisory Control and Data Acquisition (SCADA) system**: By providing remote monitoring and control capability, SCADA will promote more efficient system performance during both routine and alternative operations.
- **Watershed Management Activities:** The Authority continues to advocate watershed protection through the following projects and programs: Support of the Occoquan Watershed Monitoring Program and the Occoquan Nonpoint Source Program, Study of critical watershed areas, increased involvement in watershed and water quality issues, and analysis of ongoing activities in the watershed.

CURRENT PROJECT DESCRIPTIONS

FAIRFAX COUNTY WATER AUTHORITY

1. **General and Administrative.** $46,590,000 for annual expenses attributed to administration and overhead. These expenses include materials and supplies; refund of advances; and costs associated with net revenue funded projects, but not attributed to a single project or program.

2. **Subdivision & Other Development Projects.** $7,650,000 for annual expenses attributed to the review and approval of plans for water main installation associated with land development activities. This project also includes provisions for FCWA inspection of water mains installed by land development contractors.

3. **Extraordinary Maintenance and Repairs**. $80,418,000 for extraordinary maintenance and major repair of supply, treatment, transmission, distribution and general plant facilities associated with a specific project.

4. **Additions, Extensions and Betterments**. $48,026,000 for improvement and betterment of existing supply, treatment, transmission, distribution and general plant facilities associated with a specific project.

5. **General Studies and Programs.** $8,044,000 for general studies, programs, engineering and research pertaining to water quality, water supply, and system development.

6. **Treatment Facilities**. $200,471,000 for the future 120 MGD Griffith Water Treatment Plant on the Occoquan Reservoir. Costs also include the construction of a consolidated water analysis laboratory at the Potomac Treatment facilities.

7. **Transmission Facilities**. $32,698,000 for the design and construction of various transmission facilities throughout Fairfax County. Other projects include various pumping station modifications and the transmission SCADA system.

8. **Distribution Facilities.** $2,226,000 for the design and construction of additional distribution facilities to replace inadequate well systems in northern Fairfax County.

9. **General Plant Facilities.** $10,480,000 for annual expenses attributed to administration, overhead, and bond financing for projects funded by current bond issue, future bond issue, or funds on hand.

10. **Potomac Stage III Treatment Facilities.** $129,300,000 for the design and construction of the next production capacity increment at the Corbalis Water Treatment Plant.

11. **Potomac Stage III Transmission Facilities.** $64,763,000 for the design and construction of various transmission facilities primarily associated with development of the Potomac River Water Supply Facilities. Water main projects include the Corbalis-Fox Mill Water Main, Fox Mill-Vale Road Water Main, Waple Mill-Vale Road Water Main, and the Stringfellow Road Water Main. Additional projects include associated storage facilities.

12. **Potomac Stage III General Plant Facilities.** $26,130,000 for annual expense attributed to administration, overhead, and bond financing associated with development of the Potomac River Water Supply Facilities funded by future bond issue and funds on hand.

FALLS CHURCH DEPARTMENT OF PUBLIC UTILITIES

13. **Powhatan Street Water Main – Arlington County Interconnection.** $534,000 to extend approximately 2,100 linear feet of 16-inch ductile iron pipe along Powhatan Street to connect the City's existing 12-inch pipe to the Arlington County Water System for back-up water supply in case of emergency (water main breaks, power outage, river crossing bypass, etc.). This project will also improve the fire protection in the Franklin Park area.

14. **Dolley Madison Boulevard Transmission Main.** $5,150,000 to install a 18,300 linear feet of 24-inch transmission main from Chain Bridge Pumping Station to McLean Pumping Station and 7,400 linear feet of 20-inch transmission main from McLean Pumping Station to Scott's Run Pumping Station along Georgetown Pike and Dolley Madison Boulevard. This main will provide the additional transmission capacity necessary to transfer water from Chain Bridge towards Tysons Corner to meet future projected demands in that area.

15. **Old Dominion Drive Water Main – Arlington County Interconnection.** $375,000 to install 1,250 foot extension of 12-inch ductile iron pipe along Old Dominion Drive. It will connect the City's existing 10-inch main to the Arlington County water system for back-up water supply in case of an emergency (water main breaks, power outage, river crossing bypass, etc.). This project will also improve fire protection in the Chesterbrook Shopping Center area.

16. **Fairview Lake Loops.** $420,000 to install 550 linear feet of 12-inch, 850 linear feet of 8-inch and 480 linear feet of 6-inch water main to complete the loops in this area. This project will improve service reliability and eliminate dead ends to provide better drinking water quality.

17. **Tysons Corner System Improvements**. $2,207,000 to improve the water pressure, fire protection, and storage capacity in the Tysons Corner area. The existing 1.6 MG Tysons Tank will be removed and a new 2.2 MG tank will be built at the same location. Scotts Run and George Mason pumping stations will be upgraded. An addition of an underground booster pumping station at the Dunn Loring Tank site will be constructed and 4,200 linear feet of 12-inch water main along Gallows Road and two pressure reducing valves to lower the pressure, which is now over 100 psi in the Fairfax Circle area will be installed.

18. **Second River Crossing Transmission Main**. $20,600,000 to install a parallel transmission main from the Washington Aqueduct Treatment Plant and the City's Chain Bridge main pumping station.

19. **Seven Corners System Improvements**. $3,100,000 for a feasibility study to address low pressure and inadequate fire protection issues at Seven Corners.

20. **McLean Pumping Station Improvement**. $1,980,000 to upgrade the McLean Pumping Station from 10 MGD to 13 MGD to meet the future demand of customers.

21. **Falls Church Sewer Rehabilitation.** $1,200,000 to replace or line with insituform, which is the process for reconstructing aged, damaged and deteriorated sewer lines. This is an on-going project until the entire system is rehabilitated. The comprehensive sewer study will provide recommendations for expanded rehabilitation requirements.

PROJECT COST SUMMARIES
WATER SUPPLY
($000's)

Project Title/ Project Number	Source of Funds	Authorized or Expended Thru FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total FY2004-FY2008	Total FY2009-FY2013	Total Project Estimate
Fairfax County Construction										
1. General and Administrative	SR	***C***	***2,110***	***1,850***	***2,110***	***2,570***	***8,560***	17,200	29,390	46,590
2. Subdivision and Other Development Projects	SR	***C***	***850***	***850***	***850***	***850***	***850***	4,250	3,400	7,650
3. Extraordinary Maintenance and Repairs	SR	***C***	***10,417***	***8,572***	***8,163***	***8,404***	***8,583***	44,139	36,279	80,418
4. Additions, Extensions and Betterments	SR	***C***	***5,640***	***5,700***	***6,291***	***4,981***	***4,962***	27,574	20,452	48,026
5. General Studies & Programs	SR	***C***	***869***	***839***	***836***	***857***	***880***	4,281	3,763	8,044
6. Treatment Facilities	SR	***163,317***	***24,663***	***8,761***	***3,676***			37,100		200,417
7. Transmission Facilities	SR	***22,759***	***6,404***	***2,235***	***700***	***600***		9,939		32,698
8. Distribution Facilities	SR	***1,588***	***638***					638		2,226
9. General Plant Facilities	SR	***4,860***	***3,700***	***1,250***	***570***	***100***		5,620		10,480
10. Potomac Stage III Treatment Facilities	SR	***9,049***	***7,500***	***40,000***	***40,000***	***32,751***		120,251		129,300
11. Potomac Stage III Transmission Facilities	SR	***14,215***	***15,200***	***7,448***	***4,500***	***1,600***		28,748	21,800	64,763
12. Potomac Stage III General Plant Facilities	SR	***850***	***2,650***	***5,760***	***5,830***	***5,890***		20,130	5,150	26,130
Subtotal		***216,638***	***80,641***	***83,265***	***73,526***	***58,603***	***23,835***	319,870	120,234	656,742
Falls Church Department of Public Utilities										
13. Powhatan Street Water Main	SR		***534***					534		534
14. Dolley Madison Boulevard Transmission Main	SR				***500***	***2,500***	***2,150***	5,150		5,150
15. Old Dominion Drive Water Main	SR		***375***					375		375
16. Fairview Lake Loops	SR				***420***			420		420
17. Tysons Corner System Improvement	SR		***2,207***					2,207		2,207
18. Second River Crossing Transmission Main	SR		***1,200***	***1,400***		***18,000***		20,600		20,600
19. Seven Corners System Improvement	SR		***100***	***1,000***	***2,000***			3,100		3,100
20. McLean Pumping Station	SR		***450***	***1,530***				1,980		1,980
21. Falls Church Sewer Rehabilitation	SR		***400***	***400***	***400***	***400***	***400***	2,000		2,000
Subtotal			***5,266***	***4,330***	***3,320***	***20,900***	***2,550***	36,366		36,366
GRAND TOTAL		$216,638	$85,907	$87,595	$76,846	$79,503	$26,385	$356,236	$120,234	$693,108

Key: Stage of Development

- Feasibility Study or Design
- Land Acquisition
- Construction

Notes:

Numbers in bold italics represent funded amounts.

A "C" in the Authorized or Expended Column denotes a continuing project.

Key: Source of Funds

B	Bonds
	General Fund
X	Other
U	Undetermined
SR	Systems Revenues
BR	Revenue Bonds